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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

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| APPELLANTS: | Jessica Malmborg | CONFIRMATION NO. 3462 |
| SERIAL NO.: | 09/919,105 | GROUP ART UNIT: 2173 |
| FILED: | July 31, 2001 | EXAMINER: Dennis Bonshock |
| TITLE: | "USER INTERFACE FOR A MEDICAL DISPLAY DEVICE" | |

**MAIL STOP APPEAL BRIEF-PATENTS**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

**APPELLANT'S MAIN BRIEF ON APPEAL**

S I R:

In accordance with the provisions of 37 C.F.R. §41.67, Appellants herewith submit her main brief in support of the appeal of the above-referenced application.

**REAL PARTY IN INTEREST:**

The real party in interest is Maquet Critical Care AB, assignee of the present application, a Swedish corporation.

**RELATED APPEALS AND INTERFERENCES:**

There are no related appeals and no related interferences.

**STATUS OF CLAIMS:**

Claims 1-16 are the subject of the present appeal, and constitute all pending claims of the application. No claim was added or cancelled during prosecution before the Examiner.

**STATUS OF AMENDMENTS:**

The present Appeal Brief is accompanied by an Amendment Under 37 C.F.R.§1.116, the sole purpose of which is to correct typographical errors in claims 14 and 16. Since the Amendment is being filed simultaneously herewith, Appellant

does not know at this time whether it will be entered, however, since the Amendment is solely editorial and does not raise any new issues requiring further searching or consideration, Appellant assumes it will be entered and claims 14 and 16 in the attached appendix therefore embody corrections made in this Amendment.

**SUMMARY OF CLAIMED SUBJECT MATTER:**

Figure 1 shows a user interface 2 according to the invention operatively connected to a ventilator 4. The user interface 2 can be a fully integrated part of the ventilator 4 or detachably connected thereto. (p.7, l. 2-4)

The ventilator 4 can supply a patient 6 with breathing gas through an inspiratory line 8 and evacuate gas expired by the patient 6 through an expiratory line 10. Medical ventilators are well known in the medical art and need not be further described herein. The ventilator 4 is only used as an example of a medical machine or apparatus for which the user interface according to the invention can be used. This makes it easier to describe and understand the composition and operation of the user interface. (p.7, l. 5-10)

A display screen 12 is an important part of the user interface 2. Customary information (choice of breathing mode, parameters for the breathing mode and for the patient 6 etc.) can be displayed on it. Information can be input in one or more different (known) ways, e.g. with a keypad, knob, pushbutton, touch screen, microphone (voice-controlled), remote control (by cable, light, sound, radio etc.). (p.7, l. 11-15) Some information can be stored in memories (RAM or ROM). Some information can be retrieved from sensors in apparatuses (primarily the ventilator 4 but even other apparatuses such as a pulse oximeter, ECG-apparatus, etc.) and

from sensors on the patient 6. All according to methods of treatment, diagnosis and collection of data well known in this context. (p.7, l. 15-20)

The screen 12 is also a key component in human-machine interaction. It is here that the user interface 2 according to the invention improves and simplifies operation and monitoring of different systems compared to conventional interfaces. (p.7, l. 21-23)

A more detailed drawing of one embodiment of the user interface 2 is shown in Figure 2. The user interface 2 contains a memory 14. The memory 14 can have a component (ROM) holding permanently programmed information and a component (RAM) holding changeable information. The memory 14 contains inter alia normal data, representing expected values on certain parameters. (p.7, l. 24 - p.8, l.3)

New information can be sent to the memory 14 across a first signal bus 16. The memory 14 is connected to a control unit 18. The control unit 18 receives signal data (primarily measurement data but even other data well, as is evident from the description below) via a signal input 20 from a second signal bus 22. Alternatively, or as a complement, signal data can be read into the memory 14, illustrated in Figure 2 by the dashed signal bus 22A. (p.8, l. 4-9)

In instances where normal data consist of a preset parameter, the value for the preset parameter can be sent straight to the control unit 18 (the setting itself constituting a "memory.") (p.8, l. 10-12)

The control unit 18 contains the hardware and software necessary for subtracting signal data from normal data (illustrated with the subtractor 24) for each parameter, comparing the difference between one or more threshold values (illustrated with the comparator 26) and generating an image representing signal

data and normal data according to the invention (illustrated with the image generator 28), shown as a circle 30, divided into sectors, on the screen 12. (p.8, l. 13-18)

In order to supply the most legible information possible, the image consists of a circle or regular polygon as long as signal data do not deviate excessively from normal data. In order to achieve this, normal data must be displayed for each parameter or represented by a sector at the same distance from the midpoint as other parameters. (p.8, l. 19-22) One advantage of the invention is that normal data can consist of a fixed value (e.g. a preset value for a device function) or a range (e.g. a physiological measurement value such as carbon dioxide output). The advantage of the range is that more patients can be covered by "normal" values for physiological measurements. (p.8, l. 23-p.9, l.2)

In the latter instance, the range limits can coincide with threshold values (for normal levels). Comparing signal data with threshold values may then be sufficient for determining the way in which the sector is displayed on screen. Naturally, signal data also can be subtracted from the range limits for normal data, and one or both of these can be compared with threshold values (only comparing values outside the range limit with threshold values is then sufficient). (p.9, l. 3-8)

It would also be advantageous for certain patient groups if "new" normal data could be set or created. Certain parameters vary more than others, depending on the patient's condition. Individual patient data can therefore advantageously be used as normal data at various times. Normal data for a specific parameter will then vary over time with the patient's condition. (p.9, l. 9-13) New values set for normal data can naturally consist of a fixed value (e.g. the mean value over a specific period of

time) or a range (e.g. based on variance or the extent of variance over a specific period of time). (p.9, l. 13-15)

A first example of the way in which the representation generated by the control unit 18 on the screen 12 can look in a normal situation is shown in Figure 3, and a representation with a deviation for two parameters is shown in Figure 4. The following description therefore applies to both figures. (p.10, l. 12-15)

In this exemplary embodiment, the representation 30 consists of three circles, i.e. a lower alarm limit 32, a data circle 34 and an upper alarm limit 36. The data circle 34 in the example is divided into six sectors, one for each parameter to be displayed. As long as parameter values (signal data) are in accordance with normal data, a perfect circle is displayed. (p.10, l. 16-20) Since the user interface is described when used with a ventilator, the parameters have been selected on the basis of what may be appropriate for this application (more/fewer or some other selection of parameters is fully feasible, of course). (p.10, l. 20-23)

In this instance, a first sector 38A shows peak pressure during inspiration (Ppeak), a second sector 38B shows positive end-expiratory pressure (PEEP), a third sector 38C shows expired minute volume (MVe), a fourth sector 38D shows respiratory rate (RR), a fifth sector 38E shows oxygen content ($FIO_2$) and a sixth sector 38F shows end-tidal carbon dioxide content ($etCO_2$). (p.10, l. 24 - p.11, l.3) Each parameter is represented by the area within the respective sector in the circle formed by the lower alarm limit 32 and the data circle 34. This area is shaded to indicate that it can be displayed in a different color. For instance, all the sectors can be green as long as everything is normal. Green is usually perceived as indicating that everything is as it should be. (p.11, l. 3-7)

Actual measurement values for the parameters can be displayed in the sectors, as shown by the data fields 40A-F. Alternately, normal data can be shown in the data fields 40A-F, or (for apparatus constants) current settings. In the latter instance, normal data consist of a basic setting, and changes therein constitute signal data, and are illustrated in the same way as when measurement data display excessive deviation. This can be useful in avoiding inadvertent changes in settings or for tailoring setting options to the patient's condition. (p.11, l.8-14)

Deviation between signal data and normal data (preferably exceeding some threshold value) is shown as is evident from the versions of the first sector 38A' and the second sector 38B' in Figure 4. The radius of the second sector 38B' has increased one step (and the color changed). The radius of the first sector 38A' has increased three steps and reached the upper alarm limit 36. (p.11, l. 15-19) The stepwise change causes a distinct deviation from the circular shape right from the first step. Deviation is then readily noticeable by passing staff (and is made even more apparent by a change in color which could be blue for the second sector 38B' and red for the first sector 38A'; a two-step change could be designated with e.g. yellow). (p.10, l. 19-23)

The change in the example from signal data coinciding with normal data to form circle 34 and the respective alarm limit 32, 36 takes place in two steps. Another number of steps (greater or fewer) is conceivable. The shift would be more gradual with additional steps. The number of steps for the respective parameter in the image can also vary. For example, the fifth sector 38E, which designates oxygen content, could jump straight to one of the alarm limits 32, 36 if oxygen content deviated from a normal range (e.g. ±5% of the preset value). The first sector 38A could have one

intermediate step and other sectors two intermediate steps. Adaptation options are virtually endless, however, simplicity and information accessibility for the user are retained. (p.11, l. .24 - p12, l.7)

The same applies when signal data are less than normal data and approach the lower alarm limit 32. (p.12, l. 8-9)

An alternative way of displaying the representation is shown in Figure 5. In this instance, the representation 42 consists of three polygons. As in the preceding example, they correspond to an upper alarm limit 44, signal data 46 and a lower alarm limit 48. (p.13, l. 21-24)

The representation 42 is subdivided into eight sectors 50A-H. In this instance, the sectors 50A-H are not uniform. The second and third sectors 50B, 50C share one side of the polygon, whereas the eighth sector 50H comprises two sides. The choice of size for the sectors can be made on the basis of the importance of the sectors to be represented. (p.14, l. 1-5)

In the embodiment in Figure 5, signal data for the parameter in the sixth sector 50F are smaller than normal data, and sector 50F has been reduced towards the lower alarm limit 48. (p.14, l. 9-11)

Additional examples of the way in which the control unit can generate representations are shown in Figure 6. Four representations of signal data, designated 54, 56, 58 and 60, are displayed on screen. The representations 54-60 are positioned so all are visible, but only one of them (the first representation 54 in this instance) is enlarged. The positioning of the enlarged first representation 54 towards a corner of the screen 52 also clearly indicates the importance of the representation 54-60 which is currently enlarged (compared to the size the first

representation 54 would have had if located in the centre of the screen 52). (p.14, l. 12-19)

The example also shows that no alarm limits are displayed on screen 52. Changes are only displayed with colors. One possibility is then for the entire sector to change color, about the same way as described above. An indication of increasing or decreasing signal data can then be represented, if desired, with an arrow 62, as shown in Figure 6. (p.14, l. 20-24)

An alternative version of several representations is also indicated in Figure 6. Instead of several small and one large representation, the representations can be in the form of windows superimposed upon one another. This is indicated with a dashed representation 54A under the first representation 54. (p.15, l. 24 - p.16-l. 2)

**ISSUES TO BE REVIEWED ON APPEAL:**

The following issues are presented for review in the present appeal:

whether the subject matter of claim 1 complies with the enablement requirement of 35 U.S.C. §112, first paragraph;

whether the subject matter of claims 1-12, 14 and 15 would have been obvious to a person of ordinary skill in the field of graphics display design under the provisions of 35 U.S.C. §103(a), based on the teachings of United States Patent No. 4,675,147 (Schaefer et al.) and United States Patent No. 6,343,508 (Feller); and

whether the subject matter of claims 13 and 16 would have been obvious to a person of ordinary skill in the field of graphics display design under the provisions of 35 U.S.C. §103(a) based on the teachings of Schaefer et al., Feller and United States Patent No. 6,211,887 (Meier et al.).

## ARGUMENT:

### Rejection of Claim 1 Under §112, First Paragraph

The basis for rejecting claim 1 under 35 U.S.C. §112, first paragraph as failing to comply with the enablement requirement is that the Examiner believes the language of claim 1 stating "said sectors being displayed without inter-relation to each other" is not described in the specification in such a way as to enable one skilled in the art to which it pertains, or which it is most nearly connected, to make and/or use the invention. In the final rejection dated January 13, 2005, the Examiner agreed that the sections are not limited in size by adjoining measures, but the Examiner stated there is not support in the specification or the drawing, and in fact they teach against, the sectors being displayed without inter-relation. The Examiner stated the sections are displayed "with relation to one another" by being uniformly varied from the same regular polygon, having a predetermined radial size. In making this rejection, Appellant respectfully submits the Examiner is ignoring the differences in meaning between the word "relation" and the word "inter-relation." As explained in the arguments below, the use of the phrase "said sectors being displayed without inter-relation to each other" means, consistent with the normal dictionary definition of inter-relation, that adjustment of one of the sectors does not automatically or necessarily result in a connected adjustment or change in another of the sectors. As discussed in detail below, this phrase was inserted in claim 1 to distinguish claim 1 over teachings in the prior art wherein two sectors are displayed side-by-side that share a common, hash-marked axis expressly for the purpose of providing a visual indication of how changing one of the sectors automatically and necessarily changes the adjoining sector.

The Examiner's argument may have merit if claim 1 had, in fact, used the phrase "without *relation* to each other" instead of the phrase "without *inter-relation* to each other." In fact, it is almost impossible to imagine how two physical items could not be "related" in the sense used by the Examiner. Any two displayed items *must* have a "relation" to each other, even if that is not intended, in the sense that this term is being interpreted by the Examiner. Even if the items are not related by being side-by-side, they would still be "related" if they were displayed on the same screen, or displayed on side-by-side screens, or displayed in the same room, or displayed in the same building, etc. This is why Appellant carefully chose the phrase "without inter-relation to each other." The normal dictionary definition of that term defines "inter-relate" as "to be connected in such a way that each thing has an effect on or depends on the other, and "inter-relationship" is defined as "the way in which two or more things or people are connected and affect one another," (Cambridge Dictionaries on On-Line - Cambridge University Press (Dictionary.Cambridge.Org)). *

The Examiner agrees that the sections are not limited in size by "adjoining measures," and this is all that was intended to be meant by the phrase "without inter-relation," and that is also consistent with the normal dictionary definition of "inter-relation."

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* Providing such a citation for the ordinary dictionary definition of a term does not constitute new evidence requiring re-opening of prosecution under 37 C.F.R.§1.41.77(b)(1). The Board itself commonly relies on and cites dictionaries in its own opinions regardless of whether they have been cited by either the Appellant or the Examiner. Moreover, until receiving the final rejection, Appellant had no reason to know or expect that the Examiner would take the position that "inter-relation" and "relation" have no difference in meaning.

Appellant acknowledges that the term "without inter-relation" is not explicitly used in the present specification, however, this is because it is clear from the original specification that the entirety of the description is directed to ways by which each sector is varied independently of all of the other sectors. There is no description anywhere in the specification describing any type of "inter-relation" between two or more of the sectors, in the sense of a change in one of the sectors having a mutual dependency on a change in another of the sectors.

Therefore, Appellant respectfully submits claim 1 satisfies the enablement requirement of 35 U.S.C. §112.

**Rejection of Claims 1-12, 14 and 15 Under 35 U.S.C. §103(a) Based on Schaefer et al. and Feller**

The display disclosed in the Schaefer et al reference represents various parameters or measurement values in sectors of a regular polygon, wherein the polygon has a predetermined shape representing "normal" or "target" values for these parameters. As the parameters vary, the shapes of the sectors are distorted, however, the distortion occurs in a specific way, which is intended to convey specific information to a viewer. The sectors in the Schaefer et al reference are displayed respectively between intersecting axes, with each axis representing different units, such as temperature, pressure, flow, relative percentage, etc. The segments are specifically arranged in the polygon next to each other so that it is meaningful for adjacent sectors to share the axis that proceeds between the sectors. When the sectors are distorted in shape due to the changing values, as shown in Figures 5 and 6 of the Schaefer et al reference, the distortion occurs by changing the peripheral edge of that sector along the appropriate axis. The size or shape of each sector, therefore, is dependent on respective values for the two axes that define that sector.

The parameter represented by the sector may possibly change along only one of these axes, thereby causing that sector to have an irregular shape, as indicated in Figures 5 and 6.

Distorting the shapes of the respective sectors in the Schaefer et al reference in this manner (i.e. with respect to specific values along two axes) is essential for conveying the intended information in the Schaefer et al display. Deviating from this manner of displaying the sectors would necessarily result in a loss of the information that is intended to be conveyed. In other words, the arrangement of the sectors along the specific axes, and the manner by which the shapes of the sectors are distorted, are both essential in the Schaefer et al reference in order to convey the information in the intended manner.

If the Schaefer et al display were modified, even conceptually, to have an appearance close to that of the Feller display, this would necessarily result in a completely different manner of displaying the information, and would not display the same information with the same level of clarity, and inter-relation between adjacent sectors, as in the Schaefer et al reference.

This is partly because in the Feller reference, different parameters are displayed also as sectors of a circle, but the sectors are not of a constant angular size. Both the angular size and the radial size in the Feller reference are varied dependent on the information that is to be displayed. The angular size is varied or selected dependent on the relative importance of the parameter represented by that sector, and the radial size changes dependent on the magnitude of the sector. Moreover, although a circle of a selected radius can be included in the Feller display as representative of "normal" or "target" values for the various parameters, with the

radial sizes of the sectors than being normalized to each other so as to be referenced to this circle of constant radius, there is no teaching in the Feller reference that the various sectors are ever all displayed together within this circle of constant radius. In the Schaefer et al reference, as in the subject matter of the present application, it is important that the viewer have a "template" of the values represented by the respective sectors at their "normal" levels, so that the viewer can, at a glance, determine from the display whether and which parameters have deviated from these normal values. This is not visually accomplished in the Feller reference, merely by displaying a circle of a constant radius.

Modifying the apparatus of the Schaefer et al. reference to cause the displayed information to have an appearance more closely resembling that of the Feller reference would preclude display of the same information in the same manner as is intended in the Schaefer et al display, and therefore would destroy the intended manner of operation of the Schaefer et al apparatus. It is important in the Schaefer et al display that the aforementioned distortions of the sector shapes occur with respect to specific values along the two axes defining each sector. This is not able to be accomplished in the Feller reference, wherein the radial size of the sector is increased or decreased without a relationship to specific values along the respective axes defining the sector.

Independent claim 1 explicitly states that each sector has a constant angular size, unlike the sectors in the Feller reference which, as noted above, are varied both in angular size and in radial size. It is true that in the subject matter of the present application the sectors do not all have to be of the same angular size (see Figure 5 of the present application, for example). Nevertheless, once a sector is displayed

with a particular angular size, this angular size remains constant for that sector, and only the radial size is varied. Moreover, claim 1 states that the radial size is varied uniformly, in contrast to the non-uniform variation in sector size that occurs in the Schaefer et al display. Claim 1 also states that the variation starts from the size of the polygon that represents the normal data.

Lastly, independent claim 1 has been amended to make clear that the sectors are displayed without inter-relation to each other, further distinguishing the subject matter of claim 1 over the teachings of Schaefer et al, wherein it is essential that adjacent sectors share a common axis that represents a value that is meaningful to the respective parameters represented by the adjacent sectors.

Since there are a limited number of ways in which information can be displayed in sectors, it is not surprising that individual concepts embodied in the display of claim 1 of the present application can be separately found in various prior art reference. For the reasons noted above, however, modifying those references in view of each other unavoidably lessens, or at least significantly changes, the information that is conveyed to the viewer. Each display has been designed to convey specific information in a specific manner for a specific purpose, and those of ordinary skill in the field of graphics display recognize that one cannot arbitrarily change the details of a display without also changing the informational content thereof. The present inventor has had the insight to combine a number of different display concepts in a particular manner. Even though some of these concepts may be individually known in separate prior art references, there is no teaching in any of those references to guide a person of ordinary skill in the field of graphics display design to select only the "right" features from one reference for combination with the

"right" features from another reference. Only the present disclosure provides such a roadmap for employing the particular design features set forth in claim 1. Moreover, as noted above, departing from the intended display presentations in the Schaefer et al and Feller references would result in a loss of the ability to convey the intended information, and therefore would be a modification that would destroy the intended purpose of both of those references. Such a modification is not a permissible basis for substantiating a rejection under 35 U.S.C. §103(a).

Claims 2-12, 14 and 15 add further structure the non-obvious subject matter of claim 1, and therefore are patentable over the teachings of Schaefer et al. and Feller for the same reasons discussed above in connection with claim 1.

**Rejection of Claims 13 and 16 Under 35 U.S.C. §103(a) Based on Schaefer et al., Feller and Meier et al.**

Claim 13 states that both the aforementioned regular polygon and an additional regular polygon are simultaneously displayed. In claim 15, these simultaneously displayed polygons are overlaid in a stack, with the polygon having a largest deviation between the signal data and the normal data being disposed at the top of the stack.

In claim 16, one of the polygons is displayed in a larger format than the other.

The Examiner relied on the Meier et al reference as providing teachings which the Examiner stated are comparable to claims 15 and 16, however, Applicant disagrees. Appellant acknowledges that the Meier et al reference teaches that different polygons can be displayed overlaid on one another, however, there is no teaching in the Meier et al reference that the top most displayed polygon represents the largest deviation from normal data, as set forth in claim 15. The passages cited by the Examiner in the Meier et al reference on this point at column 2, lines 40-45

and column 8, lines 1-15 merely refer to stacking in general, however, this appears to be to allow differences in the shapes of the overlaid polygons to be more readily seen, and there is no teaching that the sequence in which the polygons are overlaid is of any importance.

As to the display in different size formats, the Examiner cited column 5, lines 10-40 in the Meier et al reference as providing a teaching that the hash marks of the axes can be changed in a selective manner by the user, and this then changes the displayed size of the polygon. There is no teaching in the Meier et al reference, however, that multiple polygons are, or even can be, displayed simultaneously in different size formats. The passage in the Meier et al reference cited by the Examiner appears to be describing initial settings which can be made by a user dependent on the type of information that is to be displayed in each polygon. The user can select the gradations for the axes of the polygon dependent on this information. For example, if temperature in Celsius is to be displayed, it may be that the hash marks on one of the axes must be divided between 0 and 100, but such a fine division might not be necessary to display some other parameter. Once the hash mark divisions are selected, however, the size of the display is completely dependent on the current value of the displayed parameter. Therefore, selecting the hash mark gradations, or even the maximum hash mark value for a particular axis, is not the same as selecting a size format. Moreover, since claim 16 depends from claim 14, this means the polygons in the respectively different size formats must be simultaneously displayed, and there is no teaching to do so in the Meier et al reference.

simultaneously displayed, and there is no teaching to do so in the Meier et al reference.

Claim 14 depends from claim 1 and therefore embodies all of the content of claim 1 therein, and claim 13 is therefore patentable over the teachings of Schaefer et al, Feller and Meier et al for the reasons discussed above in connection with claim 1. These arguments apply to claims 15 and 16 as well, in addition to the aforementioned specific arguments relating to the teachings of the Meier et al reference.

Claims 14 and 16, therefore would not have been obvious to a person of ordinary skill in the field of graphics display design based on the teachings of Schaefer et al., Feller and Meier et al.

**CONCLUSION:**

For the foregoing reasons, Appellant respectfully submits the Examiner is in error in law and in fact in rejecting claims 1-16. Reversal of those rejections is proper, and the same is respectfully requested

A check for the fee required by 37 C.F.R. §1.17(f) in the amount of $500.00 is submitted herewith.

Submitted by,

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**CERTIFICATE OF MAILING**

I hereby certify that an original and two copies of this correspondence are being deposited with the United States Postal Service as First Class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on June 1, 2005.

Steven H. Noll

STEVEN H. NOLL

## APPENDIX "A"

1. A user interface for a medical apparatus, comprising:

a display screen;

a memory containing normal data for at least two parameters;

a control unit connected to said screen and to said memory;

a signal input connected to said control unit for entering signal data for said at least two parameters into said control unit; and

said control unit causing said signal data for each parameter to be represented on said display screen as a sector of constant angular size in a regular polygon, said sectors being displayed_without inter-relation to each other and said regular polygon having a predetermined size representing said normal data, and said control unit comparing said signal data to said normal data for each parameter and uniformly varying a radial size of said sector starting from said predetermined size dependent on a result of the comparison.

2. A user interface as claimed in claim 1 wherein said control unit varies the appearance of the sector only if a difference between the normal data and the signal data exceeds a predetermined threshold value for the parameter represented by the sector.

3. A user interface as claimed in claim 1 wherein said control unit varies the radial size of said sector to produce a clear visual distinction between said sector and adjacent sectors.

4. A user interface as claimed in claim 3 wherein said control unit varies said radial size of said sector to increase said radial size if said signal data are larger than said normal data and to decrease said radial size if said signal data are less than said normal data.

5. A user interface as claimed in claim 1 wherein said control unit generates an inner regular polygon on said display screen inside said polygon, representing a lower alarm limit for said at least two parameters.

6. A user interface as claimed in claim 5 wherein said control unit varies said radial size of said sector in steps toward said lower alarm limit.

7. A user interface as claimed in claim 6 wherein said control unit varies said radial size of said sector in two steps.

8. A user interface as claimed in claim 1 wherein said control unit generates an outer regular polygon on said display screen, outside of said polygon, representing an upper alarm limit for said at least two parameters.

9. A user interface as claimed in claim 8 wherein said control unit varies said radial size of said sector in steps toward said upper alarm limit.

10. A user interface as claimed in claim 9 wherein said control unit varies said sector in two steps.

11. A user interface as claimed in claim 1 wherein said control unit generates said sectors in a color, and additionally varies said color dependent on said result of said comparison.

12. A user interface as claimed in claim 1 wherein said control unit generates said regular polygon as a circle.

13. A user interface as claimed in claim 1 wherein said display screen comprises a touch-sensitive surface, and wherein said control unit generates, when a sector is touched, an image containing more detailed information with respect to the parameter represented by the touched sector.

14. A user interface as claimed in claim 1 wherein said control unit generates at least one additional regular polygon simultaneously with said regular polygon on said display screen.

15. A user interface as claimed in claim 14 wherein said control unit stacks said regular polygon and said at least one of additional regular polygon on said display screen, with a polygon among said regular polygon and said at least one additional regular polygon having a largest deviation between said signal data and said normal data being disposed at a top of the stack.

16. A user interface as claimed in claim 14 wherein said control unit causes said regular polygon and said at least one additional regular polygon to be displayed on said display screen in a small format, with one of said regular polygon and said at least one additional regular polygon displayed in a larger format.

CH1\ 4262400.1

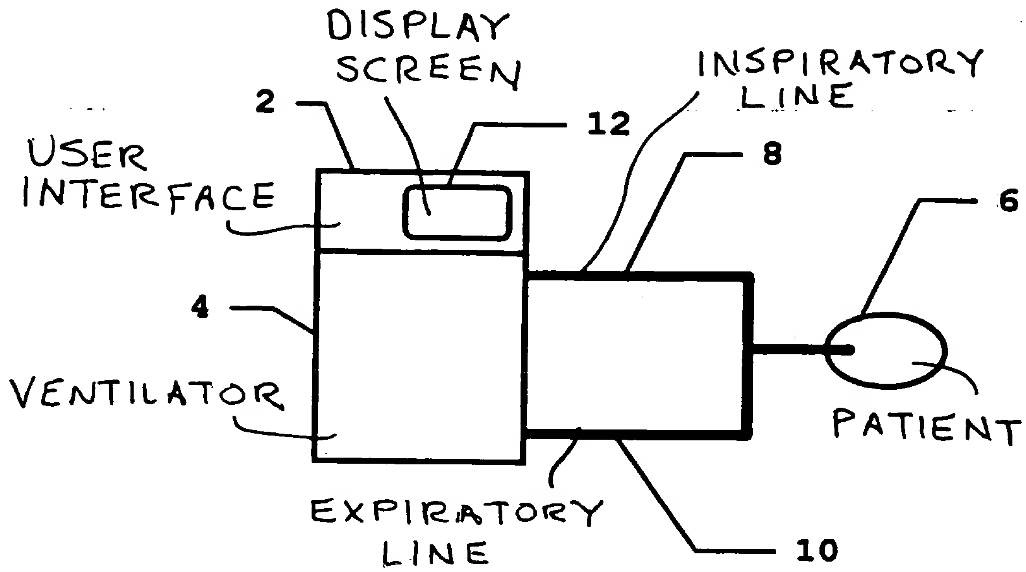
DISPLAY SCREEN
INSPIRATORY LINE
2
12
8
6
USER INTERFACE
4
VENTILATOR
PATIENT
EXPIRATORY LINE
10

FIG. 1

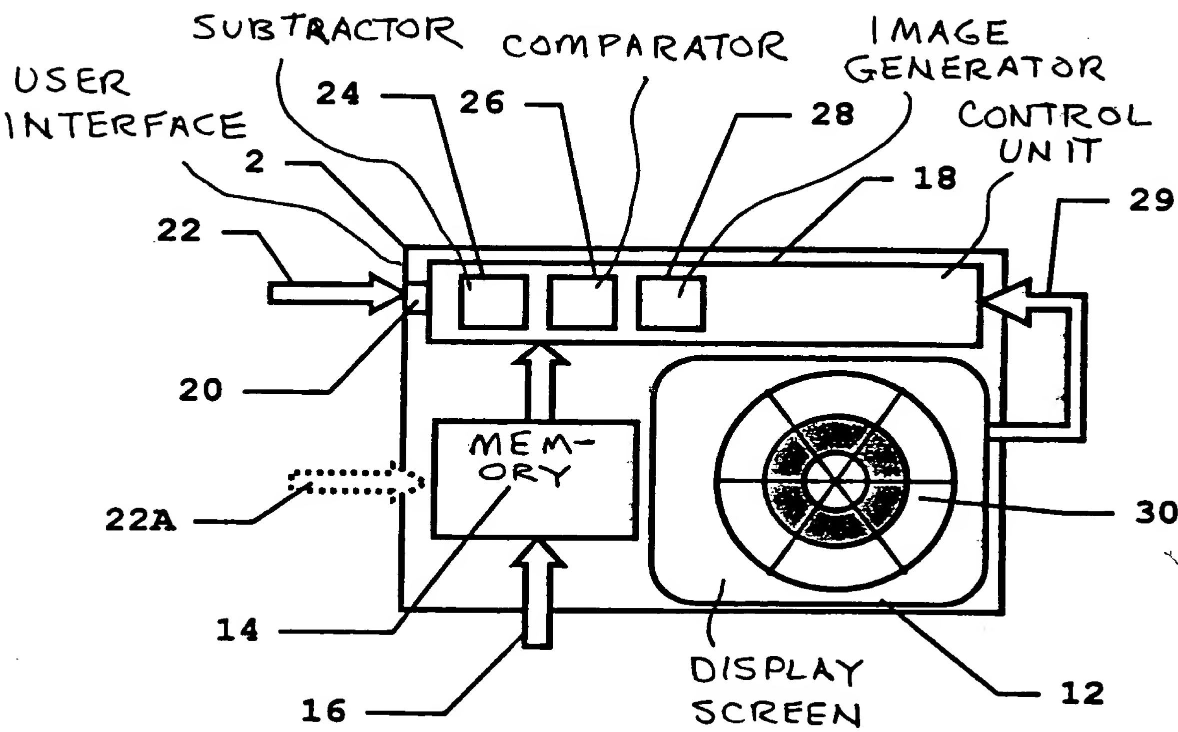
SUBTRACTOR
COMPARATOR
IMAGE GENERATOR
USER INTERFACE
24
26
28
CONTROL UNIT
2
18
29
22
20
MEM-ORY
22A
30
14
16
DISPLAY SCREEN
12

FIG. 2

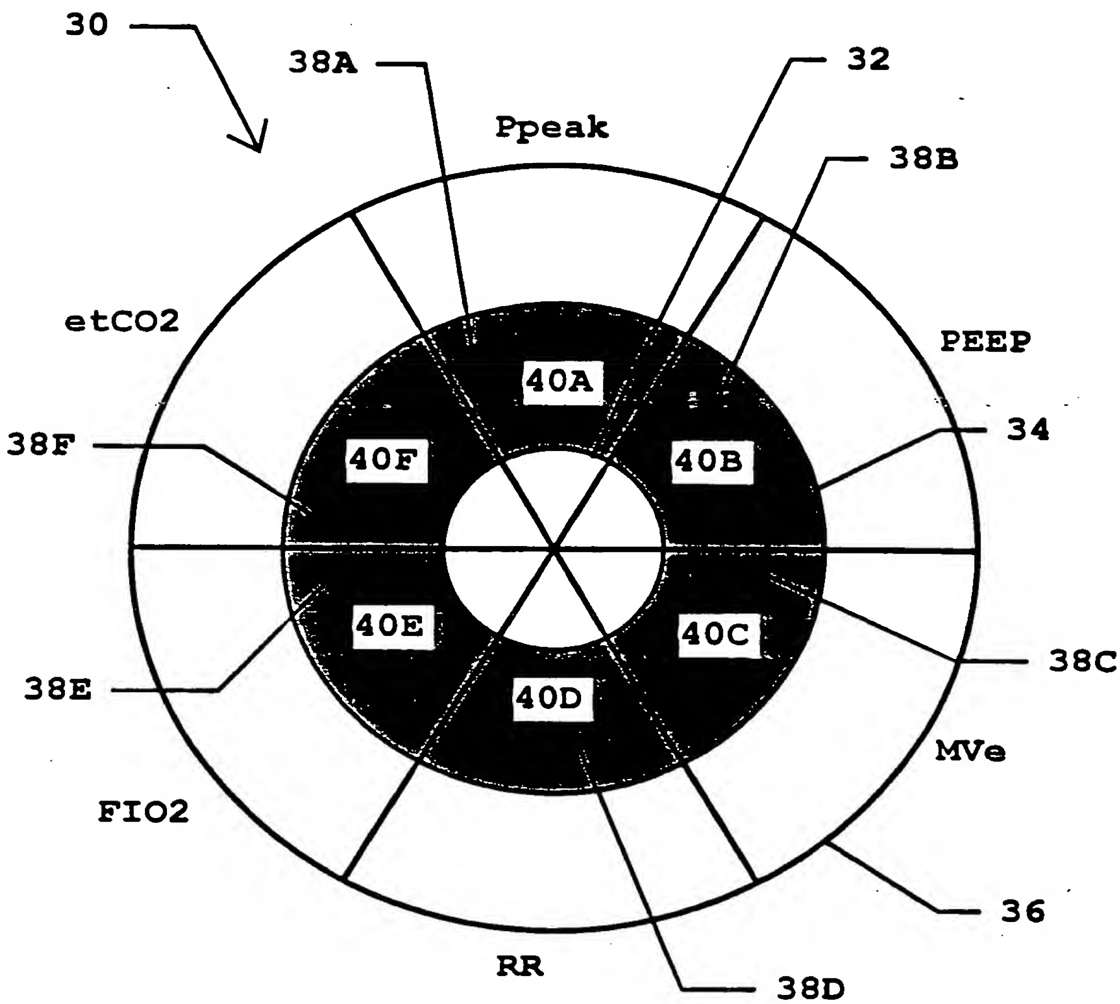
30
38A
32
Ppeak
38B
etCO2
PEEP
40A
34
38F
40F
40B
40E
40C
38C
38E
40D
MVe
FIO2
36
RR
38D

FIG. 3

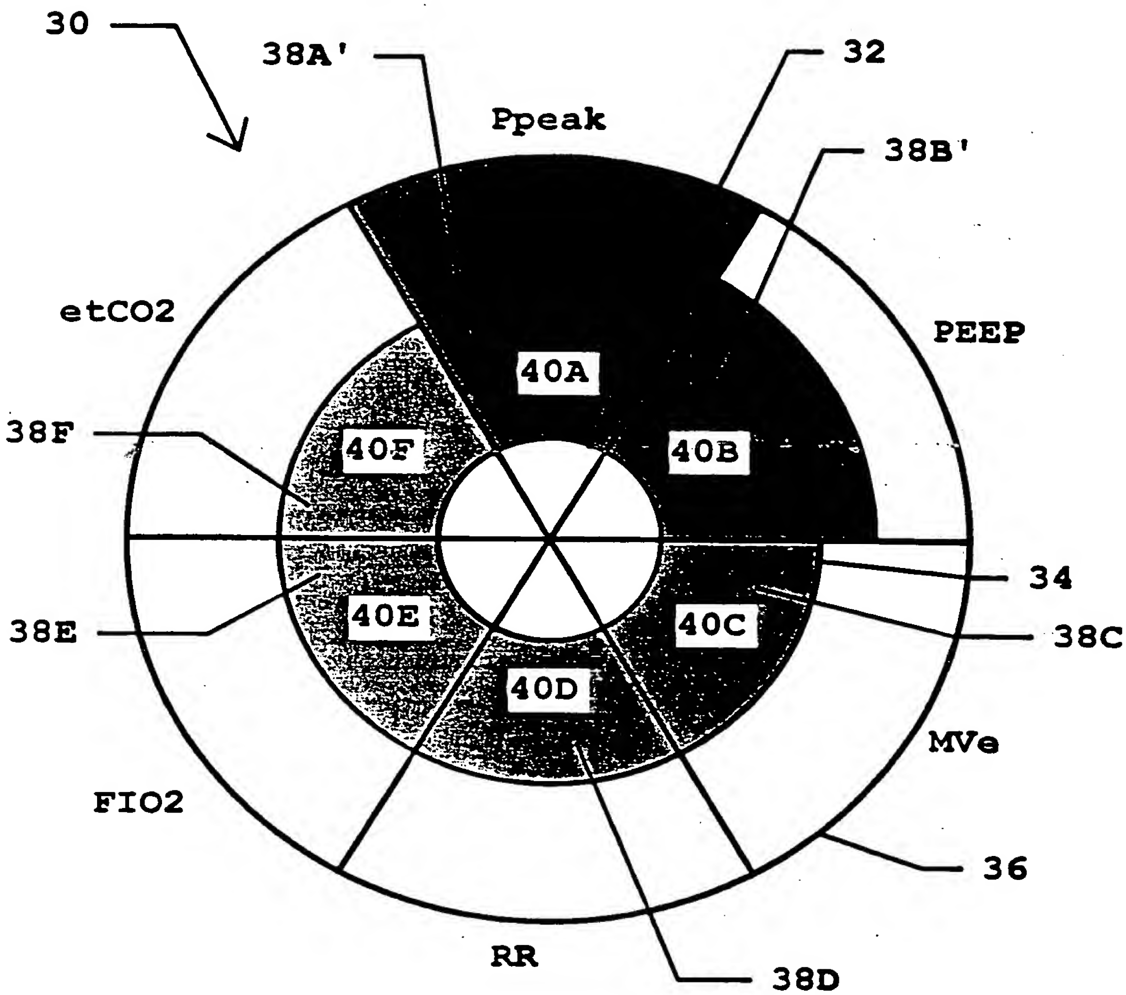
30
38A'
32
Ppeak
38B'
etCO2
PEEP
40A
38F
40F
40B
34
38E
40E
40C
38C
40D
MVe
FIO2
36
RR
38D

FIG. 4

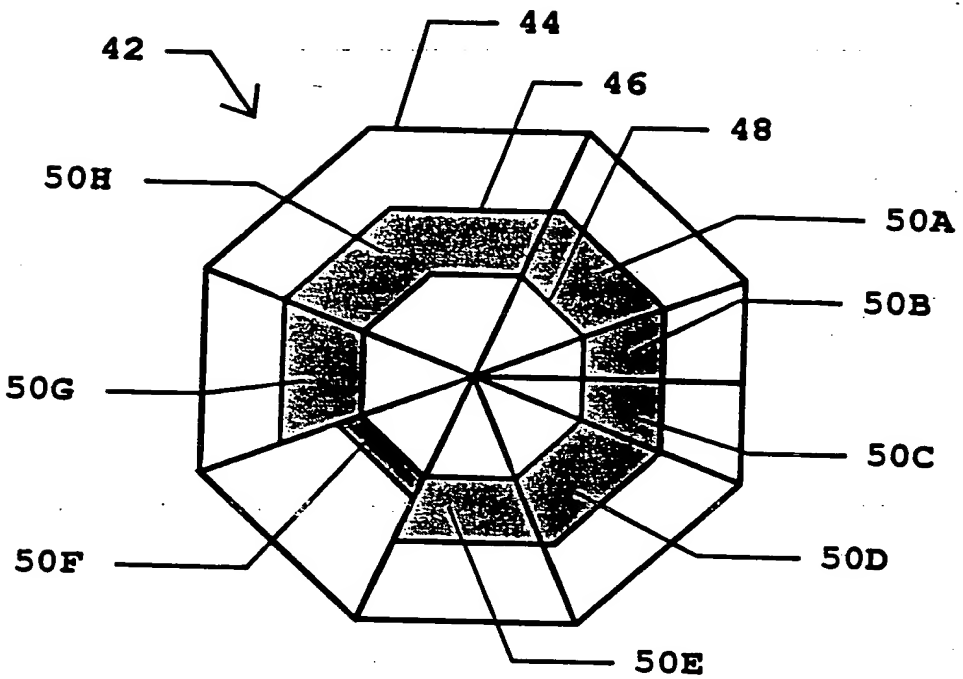
42
44
46
48
50H
50A
50B
50G
50C
50F
50D
50E

FIG. 5

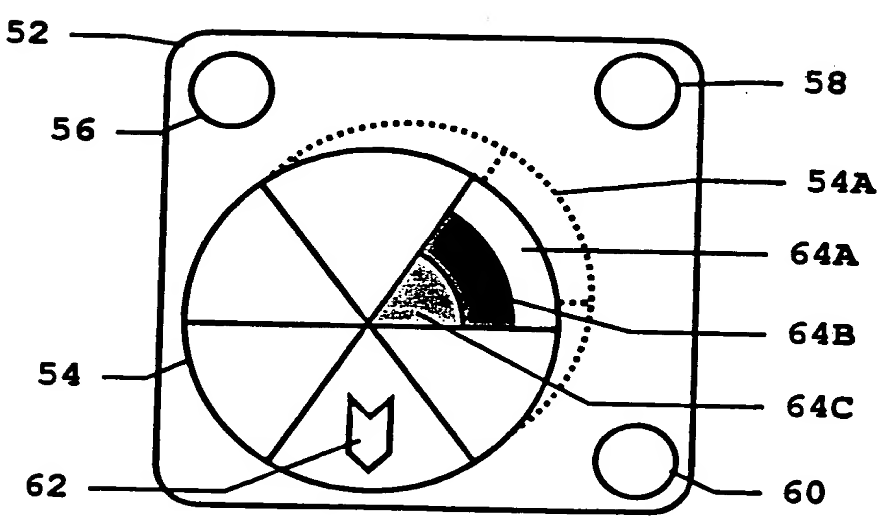
52
58
56
54A
64A
64B
54
64C
62
60

FIG. 6